

()

*

(// : // :)

($r^2 = 0.97$)

(/ **Hz/cc**)

(/ **Hz/cc**)

Hz/cc

$\pm /$ **cc**

($r^2 = 0.98$)

()

(.)

()

()

.() (r² = 0.97)

()

5

1

C++

4

3

2

Statistica V.6

.()

.()

[]

.()

$$f = \frac{c}{2 \cdot \pi} \sqrt{\frac{A}{(L - L_c) \cdot (V - V_0)}} \quad ($$

5. Standing Waves

-
1. Helmholtz Resonator
 2. Input Lip
 3. Throat
 4. Chamber or Cavity

a

V (m/s)
(m³)

f

c (Hz)

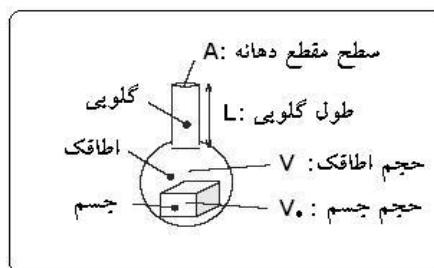
V₀

L_c

L

(m²)

A (m)



(V= cc)

(a= / cm)

(L - L_c) ()

V

() :

V

(M

$$(L - L_c) = L + \frac{16 \cdot a}{3 \cdot \pi} \quad ()$$

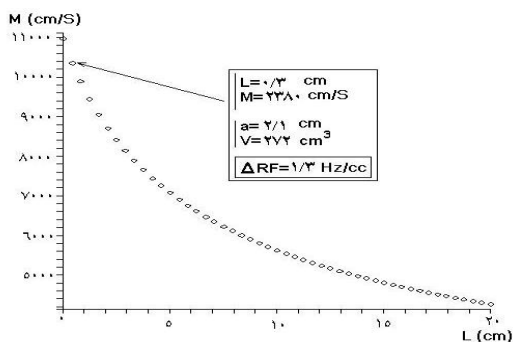
a

$$A = \pi \cdot a^2 \quad ()$$

() ()

M (c= m/s)

(L)



) M

(L)

$$f = \frac{c}{2 \cdot \pi} \sqrt{\frac{\pi \cdot a^2}{\left(L + \frac{16 \cdot a}{3 \cdot \pi}\right) \cdot (V - V_0)}} \quad ()$$

$$f = \left[\frac{c \cdot a}{2} \sqrt{\frac{3}{3 \cdot \pi \cdot L + 16 \cdot a}} \right] \cdot \sqrt{\frac{1}{(V - V_0)}} \quad ()$$

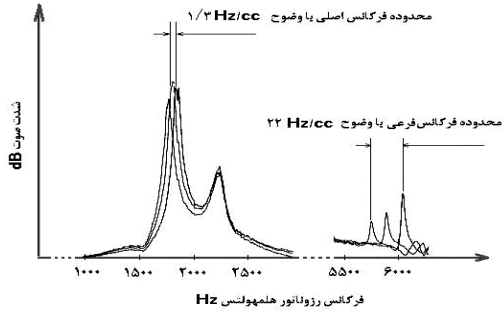
() M

(ΔRf)

)

(Hz Hz

M ()



/ Hz/cc

()

/ Hz/cc

Hz/cc

1

()

2

()



()

()

(Chrystal Sound Fusion tm CS 4281)

1. Maximum Entropy Method (MEM)
2. Fast Fourier Transform (FFT)

/ cc)

Statistica V6.

(/ cc

(Hz

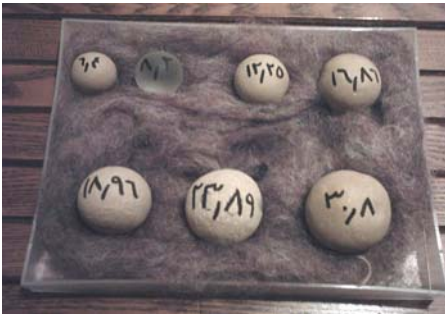
Hz)

()

()

C++

± cc

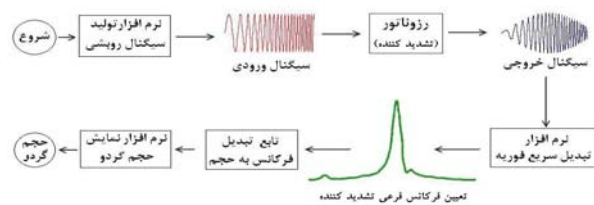


(/ Hz)

(FFT Size = 16384)



2



()

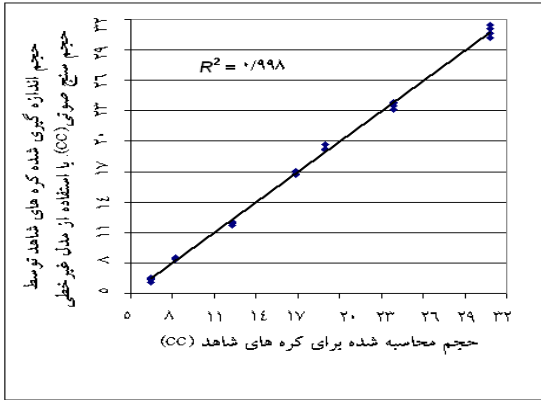
)

$$V = \frac{\pi \cdot d^3}{6}$$

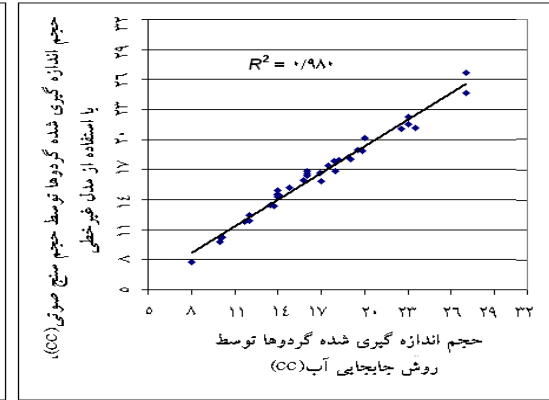
(± / mm

1. Sweep Signal Generator

2. Dynamic Data Exchange (DDE).



()



()

CC

CC

()

Hz

/

Hz

FFT

/

1

2

1. Sweeping Time
2. Repeatability

cc

± / cc

± /

± / cc

1

()

± / cc

± / cc

± / cc

cc

1. White Noise

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